
General information

Overview

The Northern Telecom serial data interface (SDI) cards covered in this document are the NT8D41AA SDI Paddle Board, the NT8D41BA QSDI Paddle Board, the QPC841 Quad Serial Data Interface (QSDI) Card, and the QPC513 Enhanced Serial Data Interface (ESDI) Card (synchronous).

The NT8D41BA QSDI Paddle Board provides four bidirectional asynchronous serial ports for the Meridian 1 system processor, and the QPC841 QSDI Card also provides four. You can connect any device to these serial ports that conforms to the RS-232-C serial communication standard.

The QPC513 ESDI Card provides two fully synchronous serial ports for the Meridian 1 system processor. The ESDI card communicates using the LAPB synchronous communications protocol. The electrical interface uses either standard RS-232-C signals or a special high-speed interface that combines the high-speed differential interface of the RS-422-A standard with the handshake signals of the RS-232-C standard. The RS-232-C interface is normally used when data rates are less than 19.2 kbps, and the cable length is less than 15.24 m (50 ft). The high-speed interface is used when the signal rates are greater than 19.2 kbps (up to 64 kbps) and/or when the cable length is greater than 15.24 m (50 ft).

[Table 1](#) shows compatibility between the three SDI cards and the various Meridian 1 switch options.

Table 1
Serial data interface cards

Card	Ports	Port types	Compatible Meridian 1 options:		
			21, 21A, 21E	51, 51C, 61, 61C	71, 81, 81C
NT8D41BA	4	RS-232-C asynchronous		X	X
QPC841	4	RS-232-C asynchronous	X	X	X
QPC513	2	RS-232-C synchronous or high-speed synchronous*	X	X	X
*See the section on the QPC513 card in this manual for details on the high-speed interface					

The NT8D41BA QSDI paddle board does not have a front panel. It mounts to the rear of the backplane in the NT6D39 CPU/Network Module, the NT5D21 Core/Network Module, or the NT9D11 Core/Network Module, and does not consume a module slot. The RS-232-C connections are brought out through special cables to the backplane I/O panel.

The QPC841 Quad SDI Card and the QPC513 Enhanced SDI Card mount in standard backplane slots, and their serial interface connectors are located on the card front panels. A list of the modules that they can be mounted in is given in the following sections on the individual cards.

Uses

Examples of asynchronous devices that can be connected to the Meridian 1 system processor using the NT8D41BA QSDI Paddle Board and the QPC841 Quad SDI Card are

- an administration and maintenance terminal
- a background terminal for use in a hotel/motel
- the Meridian 1 Automatic Call Distribution (ACD) feature
- the Meridian 1 Call Detail Recording (CDR) feature

Examples of synchronous devices that can be connected to the Meridian 1 system processor using the QPC513 Enhanced SDI Card are

- a host computer (DEC, Tandem, etc.) using the Meridian Link communications program
- the Meridian Mail voice-mail option

Features

The NT8D41 QSDI Paddle Board and the QPC841 QSDI Card provide the following features:

- asynchronous serial data interface ports, each supporting
 - RS-232-C interface
 - 8-bit ASCII data with parity and stop bit
 - Asynchronous, start-stop operation
 - Data rates of 150, 300, 600, 1200, 2400, 4800, and 9600 baud
 - Data terminal equipment (DTE) emulation mode
 - Data communication equipment (DCE) emulation mode
- enable/disable switch and LED
- input/output (I/O) device address selectable by on-board switches.

The QPC513 ESDI Card provides these features:

- fully synchronous serial data interface ports, each supporting
 - RS-232-C or modified RS-422-A interface
 - LAPB subset of the HDLC synchronous protocol
 - Data rates of 1200, 2400, 4800, 9600, 19200, 48000, 56000, and 64000 baud
 - Data terminal equipment (DTE) emulation mode
 - Data communication equipment (DCE) emulation mode
- enable/disable switch and LED
- input/output (I/O) device address selectable by on-board switches.

Specifications

This section lists the specifications shared by all of the SDI cards. See the appropriate section later in this document for information specific to any particular card.

Power consumption

The SDI cards obtain their power directly from the module backplane. Power consumption for each of the cards is shown in [Table 2](#).

Table 2
Power consumption

Voltage	Maximum power consumption		
	NT8D41BA	QPC513	QPC841
+5 VDC $\pm 5\%$	1.0 Amp	3.0 Amp	1.5 Amp
+12 VDC $\pm 5\%$	100 mA	50 mA	100 mA
−12 VDC $\pm 5\%$	100 mA	50 mA	100 mA

Environmental

The SDI cards operate without degradation under the conditions listed in [Table 3](#).

Table 3
Environmental specifications

Specification	Operation	Storage
Ambient temperature	0° to 50°C; (32° to 122°F)	−55° to +70°C; (−58° to 158°F)
Relative humidity (non-condensing)	5% to 95%	0% to 95%
Altitude	3500m; (11000 ft)	15000m; (50000 ft)

Electrostatic discharge

The SDI cards meet the requirements of the IEC 801-2, clause 8.0 procedure. They can withstand a direct discharge of ± 5 to ± 20 kV without being damaged.

Electromagnetic interference

The Meridian 1 system meets the requirements of FCC Part 15 and CSA C108.8 electromagnetic interference (EMI) standards as a class “A” computing device. To accomplish this, the SDI cables must exit the module through EMI filters on the I/O panel.

Reliability

The Mean Time Between Failure (MTBF) for all SDI cards is 55 years at 40°C and 29 years at 55°C.

Installation

To use a serial data interface card in a Meridian 1 system you must first install the card in the system, and then configure the system software to recognize it. These steps are discussed in the following sections.

Installing the card

Instructions for installing the serial data interface cards are found in *Circuit card installation and testing* (553-3001-211).

Instructions for cabling the serial data interface cards to the various system consoles and peripherals are found in *Meridian 1 system installation procedures* (553-3001-210).

Configuring the system software

Once an SDI card has been installed in the system, the system software needs to be configured to recognize it. This is done using the Configuration Record program (LD 17). Instructions for the Configuration Record program are found in the *X11 input/output guide*.

Maintenance

The following maintenance programs are used to maintain individual SDI asynchronous ports. The program used depends on the application of the port.

- LD 37 Input/Output Diagnostics—Used for system terminal, printer, background terminal ports, and system monitor status.
- LD 42 Call Detail Recording (CDR) Diagnostic—For checking CDR links and CDR system terminals.

The following maintenance program is used to maintain individual SDI synchronous ports.

- LD 48 Link Diagnostic—For checking Automatic Call Distribution (ACD) and Meridian Link ports.

Instructions for running the various maintenance programs are found in the *X11 input/output guide*. System messages are interpreted in the *X11 system messages guide*.

